

MATERIALS AND WORKMANSHIP

All materials and workmanship shall comply with City of Sedona Engineering Standards and Specifications, "Maricopa Association of Governments Uniform Standard" (MAG Specs), "Maricopa Association of Governments Uniform Standard Details for Public Works Construction" (MAG Details), "Yavapai Coounty Association of Governments Uniform Standard and Details" (YAG Specs & Details), and generally accepted good construction practices.

The Engineer may require the submittal of a "Certificate of Compliance" and/or "Manufacturer's Guidelines" for any materials used in the work. Manufacturer's guidelines shall consist of written instructions for shipping, handling, unloading, cutting, joining, installation, storage, and/or any other facets of working.

Shop drawings shall be provided by the contractor per MAG Section 105.2.

The Engineer may order any materials used in the work to be tested according to AASHTO and ASTM Standards. The Contractor shall, at his expense, supply certificates or results of testing.

ALTERNATE MANUFACTURER AND MODEL

The contractor may submit carefully documented and considered written proposals for alternate materials and construction methods. Those proposals that are found to be in conformity with good engineering design and can be easily maintained by City forces may be given written approval for incorporation in the construction plans if they are found to be in the public interest.

UNAUTHORIZED WORK

Any work performed without the knowledge and approval of the Engineer or his authorized representative, is subject to removal and replacement at the contractor's expense.

QUALIFICATIONS OF CONTRACTOR

All improvements shall be constructed by contractors licensed by the Arizona State Registrar of Contractors, with a class of license(s) for the specific work being performed.

CONSTRUCTION OBSERVATIONS

An observation of improvements will be conducted by the Engineer and shall be provided at the developers expense, as required by the City

Submittal of an Engineer's Certificate of Completion is required by ADEQ for all water and sewer system construction. Related observation and testing shall be provided by the developer's engineer at the developer's

The Engineer shall be notified 24 hours prior to beginning different phases of construction so that observations may be scheduled.

FINAL ACCEPTANCE

Final acceptance of the construction, by the City Engineer, is required before releasing of a permit and or transferring ownership of the improvements to the City of Sedona.

Approval of a portion of the work in progress does not guarantee its final acceptance. Testing and evaluation may continue until written final acceptance of a complete workable unit. Acceptance of completed improvements will not be given until defective or unauthorized work is removed, and final clean—up is complete.

City of Sedona reserves the right to request modifications to these plans during construction if field conditions warrant and the design engineer concurs.

WARRANTY

Any defects which appear in the work within two years from the date of acceptance and which are due to improper workmanship or inferior materials supplied shall be corrected by or at the expense of the contractor.

SUSPENSION OF WORK

The Engineer or his authorized representative may suspend the work by written notice when, in his judgment, progress is unsatisfactory, work being done is unauthorized or defective, weather conditions are unsuitable, or there is danger to the public health or safety.

MAINTENANCE OF FACILITIES AND WORK

The Contractor shall be responsible for maintenance of the streets and of partially completed portions of the work until final acceptance of the work. Contractor shall be responsible for maintaining the quality of existing streets leading to the project site. Existing streets found to be damaged by construction traffic shall be repaired to the satisfaction of the City Engineer by the Contractor at no additional expense to the Owner.

Utilities must be located to minimize interference with one another, to provide required horizontal and vertical separations, and to provide maintenance access without violating easement boundaries.

BLUE STAKE

Location of underground utilities shall be accomplished in accordance with ARS 40-360.22 prior to any excavation. Blue Stake shall be called at 1-800-STAKE-IT for accurate location of utilities as necessary and prior to any excavation.

COOPERATION WITH UTILITIES

A utility coordination meeting shall be coordinated by the Contractor prior to the start of any work. All utility issues shall be addressed in accordance with MAG Section 105.6.

STREET CLOSURE

Streets closed because of construction, shall be provided with barricades and/or hazard signs as required by the Engineer and approved by the City Engineer.

AS-BUILT PLANS

Prior to approval of an improvement project, an "as-built" plan must be submitted to the City Engineer. The as-built plan shall indicate the actual location of water mains, sewer mains, underground drainage structures, all sewer and water services, all fittings, valves and manholes relative to right—of—way boundaries, lot line, or other points of survey.

The design engineer shall place all information on reproducible construction plans. The as-built reproducible plans will then be placed in City records. Appropriate submittals shall be made as required to all Agencies by the developer.

CONSTRUCTION STAKING

The accuracy of all construction work shall be maintained and verified by the developer's surveyor at the developers expense by providing construction staking suitable to the Engineer. Stakes will be set establishing lines and grades (finish or flowline) for all construction including roads, curb and gutter, sidewalks, utilities, structures, and other work as considered necessary by the Engineer. All survey control shall be set by the developer's surveyor from monuments acceptable to the Engineer.

PERMITS AND APPROVALS

A.D.E.Q. requires permits be issued prior to new construction, extension to, or modification of a water distribution system, sewage collection or individual sewage treatment system.

City of Sedona requires the issuance of a Grading Permit for any excavation or aradina (including placement of fill). A Right-of-Way permit is required prior to commencing any work within any City of Sedona Right-of-Way.

STREET CONSTRUCTION

SUBGRADE PREPARATION

Native subgrade soil to receive paving shall be stripped of vegetation, debris, organic rich soils, trees and other deleterious materials. The subgrade shall be scarified and compacted to a minimum of 95% of the maximum density as determined by AASHTO Test Method T99. Clayey soils shall be compacted and maintained (until covered) at a moisture content in the range of optimum -3 to +1%. Existing sloping areas steeper than 5:1 (horizontal to vertical) shall be benched to reduce the potential for slippage between existing slopes and new fills. Benches shall be level and wide enough to accommodate compaction and earth moving equipment. Isolated clay pockets, if any, shall be overexcavated below subrade and replaced with granular material.

FILL CONSTRUCTION

Subbase fill shall consist of on-site or imported soils. Imported soils, if any, shall conform to the following:

Gradation (ASTM C136)	% Passing
6"	100
No. 4	40-100
No. 200	40 max
Maximum Plasticity Index	12

Fill shall be placed in horizontal lifts at thicknesses consistent with compaction equipment used to achieve uniform densities throughout lift thickness. Fills less than 10 feet high shall be compacted to a minimum of 95% of the maximum density as determined by AASHTO T-99. The contractor shall contract with an independent testing laboratory to provide compaction testing. Tests shall be provided at intervals of one test per 5000 square feet of fill surface for each lift of fill construction. Test results shall be submitted to the Engineer daily.

AGGREGATE BASE COURSE

The base material shall be sand and gravel, crushed rock and/or decomposed granite with enough binder material so that it can be tightly compacted and shall have a plasticity index not in excess of 6 and shall conform to gradation as required by the City Engineer. The work and construction shall be in accordance with Section 702 of M.A.G. Standard Specifications or Section 303 of ADOT Standard Specifications, and as modified herein. Section 303—2 of ADOT Standard Specifications shall be modified as follows:

Base material shall be placed in uniform layers not to exceed 6" in depth. Each layer shall be bladed to a smooth surface conforming to the cross section shown on the plans and shal be watered and thoroughly rolled in a manner satisfactory to obtain a 95% of maximum density, based on a modified proctor.

ASPHALT CONCRETE

The work and construction requirements under this section shall be in accordance with Section 409 of ADOT Standard Specifications or Section 321 of M.A.G. Standard Specifications. Mix design shall be for 2" lift, and shall be submitted to the City Engineer for review and approval.

Asphaltic concrete shall be compacted to not less than 95.0 percent of laboratory density. The laboratory density will be determined by the Contractor's Engineer based upon field samples in accordance with the requirements of AASHTO T-245, 75 blow marshall density.

Core samples shall be taken by the Contractor at random locations in accordance with quality control testing.

When the average percent of compaction is less than 95.0%, the Contractor may be required to remove and replace any portions, at the discretion of the City Engineer, at no cost to the City.

CHIP SEAL COAT

All new streets shall be chip sealed per the following specification:

The chip seal coat shall consist of emulsified asphalt, type CRS-2, (or equivalent) applied at a rate of 0.30 to 0.40 gallons per square yard and 3/8" inch chip cover aggregate. Emulsified asphalt shall be applied to the surface of the road in accordance with Section 404-3.05 of the ADOT Standard Specifications. Emulsified asphalt, type CRS-2 or equivalent shall conform to Section 1005-3.03 and Table 1005-5 of ADOT Standard Specifications.

Chip seal coat shall not be applied for 14 days after completion of the asphaltic concrete.

The cover material shall conform to Section 404-2.02 to the following gradation and shall be an aggregate mix of clean sand, gravel or crushed rock and shall be free of lumps or balls of clay, contain no calcareous, clay or dust coatings, caliche, synthetic materials, decomposed granite, volcanic cinders, organic matter, or foreign substances. If a clean cover material cannot be achieved using conventional crushing and screening methods, then the cover material will have to be washed in water. The cover material shall be applied at a rate of 25 to 30 pounds per square yard.

The grading shall meet the following requirements when tested in accordance with the requirements of Arizona test method 201.

Sieve Size	Percent by Weight Passing Sieves	
3/4"	100	
No. 4	0-25	
No. 8	0-5	
No. 200	0-2	

The Contractor is responsible for all laboratory test and certifications to assure that the chip material is in conformance to the requirements set forth in these specifications.

Representative samples of the aggregate cover material shall be taken daily, and the laboratory test results and certificates of compliance, certified by the Contractor's Engineer, shall be submitted to the City Engineer. The City Engineer may reject delivered chip material if, in his opinion, the delivered material differs significantly from the representative

The Contractor shall be responsible for successful placement of the chip seal coat regardless of temperatures of material compliance, and shall guarantee the success of the chip seal coat. The Contractor shall comply with all ADOT Standards and Specifications 404-3.14 for dates and elevations of placement.

The Contractor shall have each individual road swept within 24 hours of the completion of the chip seal. The Contractor shall maintain traffic control and loose gravel signs until all sweeping has been completed.

Blotting shall be done wherever and whenever necessary, with a material approved by the County Engineer. All excess blotter material shall be swept away and surface of the bituminous roadway shall be reasonably clean and free of all loose material before the seal coat may be applied.

A chip seal coat is required an all asphaltic concrete projects.

RELOCATIONS

Signs, trees shrubs, mailboxes and other incidentals requiring relocation shall be moved only far enough to allow construction of the project and cause the least disruption to private property, and landscape. Final positions shall be approved by the Engineer prior to relocation. All relocated items shall continue to work in their intended capacity after the relocation has been accomplished. No signs shall be relocated to positions outside designated rights—of—way. Safety shall be a primary consideration in the placement of shrubery and signs which could possibly disrupt the sight distance of motorists.

WATER SYSTEM

All water mains, appurtenances, and installation shall conform to Arizona Water Company Standards and Specifications and AWWA Standards and Arizona Department of Environmental Quality requirements. Water system shall be tested per A.D.E.Q. Bulletin No. 10 and AWWA Standard C-600.

All materials and products used in the drinking water system shall conform to NSF Standards 61.

Water line shall be disinfected per ADEQ bulletin No. 8. Water lines shall be buried with a minimum of 3' of cover. All hydrants shall meet all requirements of AWWA C-509-80.

All pipes and fittings shall be "LEAD FREE" per R-18-4-504.

SEWER SYSTEM

<u>MANHOLES</u>

All manholes shall be 4-ft. ID precast concrete with poured-in-place concrete base and traffic bearing ring and cover. All covers shall be 2—ft. in diameter and shall be marked "Sewer". Test manholes for water tightness (infiltration) per R 18-9-E301.4.01.D.3.f.. Watertightness shall be tested by either i) Filling the manhole with water and ensuring that the drop in water level does not exceed 0.001% of the total manhole volume in one hour, or ii.) Air pressure testing using the "Standard Test Method for Concrete Sewer Manholes by Negative Air Pressure (Vacuum) Test". ASTM C-1244-93. Test 100% of all manholes. Manholes shall conform to A.D.E.Q. and M.A.G. specifications. Constuction shall conform to M.A.G. Std. Dtls. 420-1 and 420-2.

<u>CONCRETE</u>

Class A concrete shall have a minimum cement content of 564 lb. per cubic yard; a water to cement ratio of 0.58; and a minimum 28 day compressive strength of 3000 psi. Class C concrete shall have a minimum 28 day compressive strength of 2000 psi. All poured—in—place concrete for water containing and/or transporting chambers, manholes and boxes, and foundations shall be Class A concrete, and shall be smooth finished on water contact surfaces. Thrust blocks, valve anghors, and concrete surrounds may be formed from Class C concrete.

The excavation method employed shall be the Contractor's option. Material shall not be stockpiled to a depth of more than 5 feet above finished grade within 25 feet of any excavation or structure. Excavation shall

extend a sufficient distance from walls and footings to allow placing and removal of forms, installation of services and inspection by the Engineer. Within 12" of finished grade shown on the drawings, and for the manholes, fill and backfill shall be native material, free from broken concrete, vegetation, or other debris with suficient fines to fill all voids and to insure a uniformly compacted mass of the required density and having a maximum size of 3 inches with 0 to 20% minus #200. All fill and backfill shall be placed in layers of not more than 8" loose and compacted to 95% of maximum density, determined by AASHTO Test Method T-99, prior to placement of the next layer.

Gravity sewer pipe shall be PVC, SDR-35 and conform to ASTM D-1784and ASTM D-3034. Seals shall conform to ASTM F-477. Pipe shall be joined by bell and spigot type joints. Fittings shall conform to ASTM D-3212. Gravity sewer pipe shall be tested for deflection and leakage. Short term deflection testing shall be performed after complete backfill but prior to installation of finish surface material. A short term deflection in excess of 5% shall be considered unacceptable and pipe shall be repaired, or replaced and retested. A minimum of 100% of gravity sewer shall be deflection tested. Sewer pipe shall be tested for leakage using low pressure air testing per "Standard Test Method for Installation Acceptance of Plastic Gravity Sewer Lines Using Low Pressure Air", ASTM F 1417-92, Reapproved 1998. Test 100% of all sewerlines. Test the total length of the sewer line for uniform slope by lamp lighting, Remote camera or similar method approved by ADEQ, and record the results. Ductile iron pipe shall be AWWA C-150, Class 350 and shall be tested for leakage per AWWA standard C-600. A minimum horizontal distance of 6-ft. shall be maintained between water mains and gravity sewers.

A.A.C. R18-4-502. DESIGN: MINIMUM DESIGN CRITERTIA

C. Water and sewer mains shall be separated in order to protect public water systems from possible contamination. All distances are measured perpendicularly from the outside of the sewer main to the outside of the water main. Separation requirements are as follows: 1. A water main shall not be placed:

a. within six feet, horizontal distance, and below two feet, vertical above the top of a sewer main unless extra protection is provided.

Extra protection shall consist of constructing the sewer main with mechanical joint ductile iron pipe or with slip—joint ductile iron pipe if joint restraint is provided. within two feet horizontally and two feet below the sewer main.

2. No water pipe shall pass through or come into contact with any part of a sewer manhole. The minimum horizontal separation between water mains and manholes shall be six feet, measured from the center of

3. The minimum separation between force mains or pressure sewers and water mains shall be two feet vertically and six feet horizontally under all conditions. Where a sewer force main crosses above or less than

feet below a water line, the sewer main shall be encased in at least six inches of concrete or constructed using mechanical joint ductile iron pipe for ten feet on either side of the water main. 4. Individual sewer service laterals will require protection.

THRUST BLOCKING

Thrust blocking is required at changes of direction and shall conform to M.A.G. Std. Dtl. 380.

TRENCHING AND BACKFILLING

Trench bottom shall be compacted by suitable means approved by the Engineer prior to placement of bedding material. Bedding material shall be placed to provide uniform and adequate longitudinal support under the pipe. The Contractor shall ensure that a minimum compacted depth of 4" is maintained underneath the pipe. Bell holes should be provided at each joint to permit proper assembly while maintaining uniform support.

Bedding material shall be rounded gravel with a maximum particle size of 3/4" and shall be non-plastic. Where depth of cover is 2-ft. or less. backfill material shall be rounded gravel with a maximum particle size of 3/4" and with no more than 20% passing the #200 sieve.

Backfill shall be placed in layers of not more than 8" loose depth and compacted to achieve compaction of 95% of the maximum density as determined by AASHTO T-99 and T-191 or ASTM D-2922 and D-3017. The Contractor shall contract with an independent testing laboratory to provide compaction testing. Tests shall be provided at intervals of one test per 50 cubic yards of trench backfill. Test results shall be submitted to the Engineer daily.

VERTICAL SEPARATION TO DRAINAGE PIPES

Where culverts or drainage pipes cross gravity sewers, pressure sewers, or water mains, a minimum of one foot of vertical separation shall be maintained between the two pipes.

CORRUGATED METAL PIPE

Galvanized helically corrugated metal pipe and end sections shall be the size as shown on the plans wih a minimum cover of 12" below top of subgrade. The pipe and end sections shall be 14 gage minimum.

Lengths and invert elevations of pipes shown on the plans are for estimating and design purposes only. Actual lengths and inverts shall be determined in the field based on the results of grade staking. All cmp's shall be installed in accordance with M.A.G. specification section 601 and

All cmp's shall have end sections or concrete headwalls as shown on plans at inlet and outlet. If rock is encountered during installation of cmp, riprap may be omitted if approved by the engineer, however riprap shall not be omitted for the 2' area around the end sections.

ELECTRICAL (APS)

Electrical (APS) is shown on plans for main trench location. All transfomer location and service locations to be installed per APS provided plans.

EROSION CONTROL

Temporary erosion control measures indicated on the SWPPP shall be instituted during construction. Provide silt fence at the toes of fill slopes. Provide rock check dams in diversion channels until permanent channel surfacing is installed.

ALL DISTURBED SLOPES SHALL BE MULCHED AND SEEDED PER THE FOLLOWING SEED SPECIFICATIONS:

Seed shall be of variety specified, and shall be applied at the rate

specified.	• •	• •
opcomod.	Species	Pure Live Seed
		Rate/Acre
Sand [Oripseed (Sporobolus Cryptandrus)	2 LB
Sideoa	ts Grama (Boutelous Curtipendula)	10 LB
Crested	Wheatgrass (Agropyron Cristatum)	10 LB

- 1. Seeding operations shall not be performed when wind would prevent uniform application of materials or would carry seeding materials into areas not designated to be seeded.
- 2. The equipment and methods used to distribute seeding materials shall be such as to provide an even and uniform application of seed, mulch and or other materials at the specified rates.
- 3. Seeding operations shall not be performed on undisturbed soil outside the clearing and grubbing limits of the project or on steep rock cuts. 4. Immediately before seeding, the surface area shall be raked or
- otherwise loosened to obtain a smooth friable surface free of earth clods, humps and depressions. Loose stones having a dimension greater than one inch and debris brought to the surface during cultivation shall be removed and disposed of by the contractor in a manner approved by the Engineer. 5. The area to be seeded shall be roughened with grooves parallel to the contours prior to seeding. A bulldozer or crawler
- tractor shall be driven up and down the slope parallel to the fall line to create a trackwalked slope. The seeds shall be uniformly applied in a direction parallel to the contours of the slope. 6. Immediately after seeding, the area shall be uniformly covered with screened manure at the rate of one cubic yard per 1.000
- minimum depth of two inches. 7. Water shall be free of oil, acid, salts or other substances which are harmful to plants. The source shall be as approved by the Engineer prior to use.

square feet and then watered until the ground is wet to a

8. The contractor shall protect seeded areas from damage by traffic or construction equipment. Surfaces which are eroded or otherwise damaged following seeding and prior to final acceptance shall be repaired by regrading, reseeding and remulching as directed by the Engineer.

NOTES TO CONTRACTOR:

1. SEE ARCHITECTURAL PLANS FOR RETAINING WALLS.

Site Cut/Fill Volumes

1. The Engineer has used his best judgment in the estimation of the earthwork for this Project. The Engineer has no control over varying field conditions and construction methods involved in the site grading. Consequently, actual quantities, cost and time required for this Project may be affected by many factors beyond the Engineer's control, and Engineer shall not be held liable for any deviation from its estimated quantities. It is the responsibility of the Contractor to verify the earthwork quantities. The following is the Engineer's estimate of raw earthwork quantities for this Project. (No shrinkage values are taken into consideration in these

Raw Cut = $_$ C.Y. Raw Fill = $_$ C.Y.

AR IZON A 811 Arizona Blue Stake, Inc.

NOTES

APR AWU AHB

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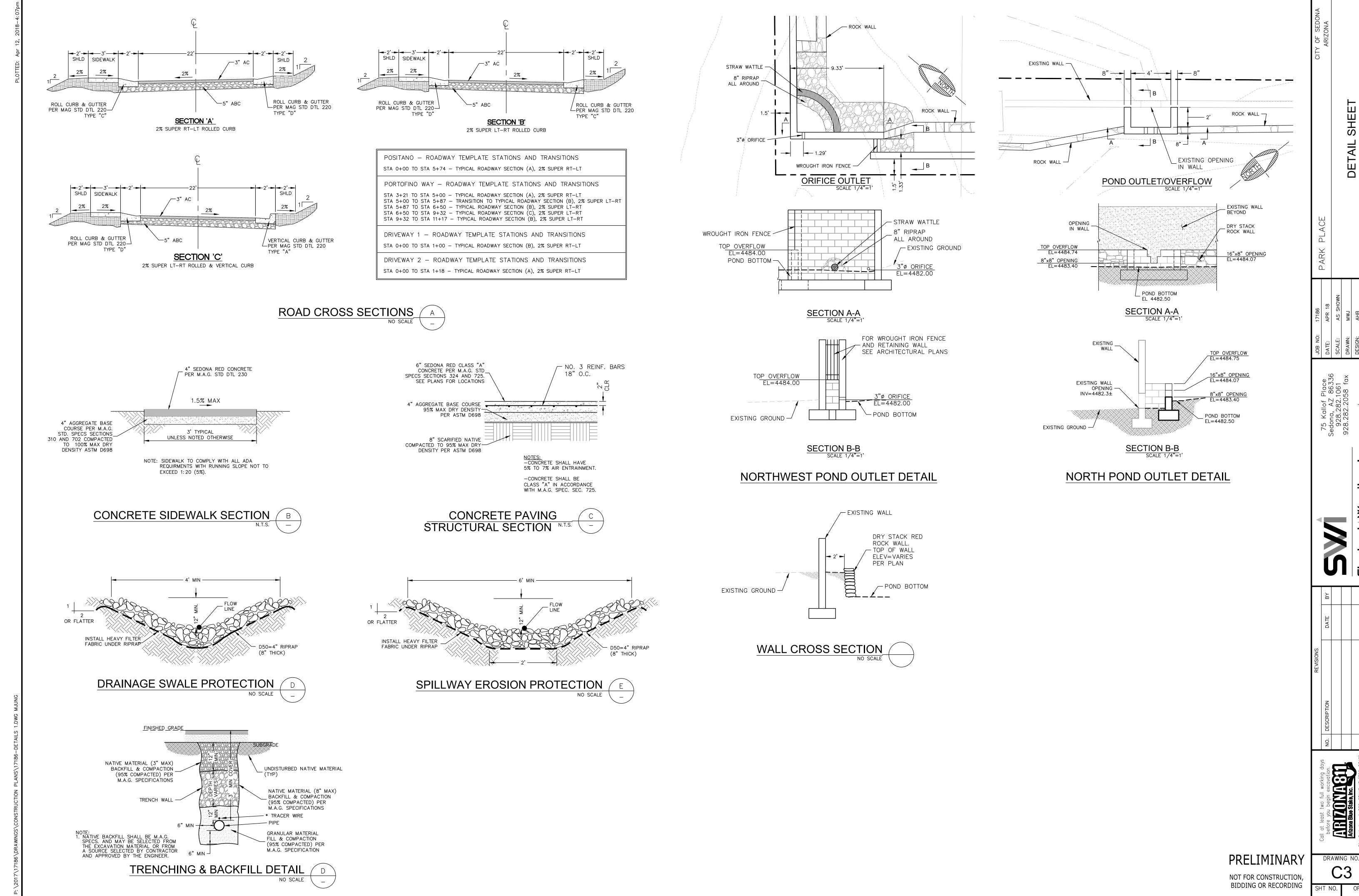
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PRELIMINARY NOT FOR CONSTRUCTION

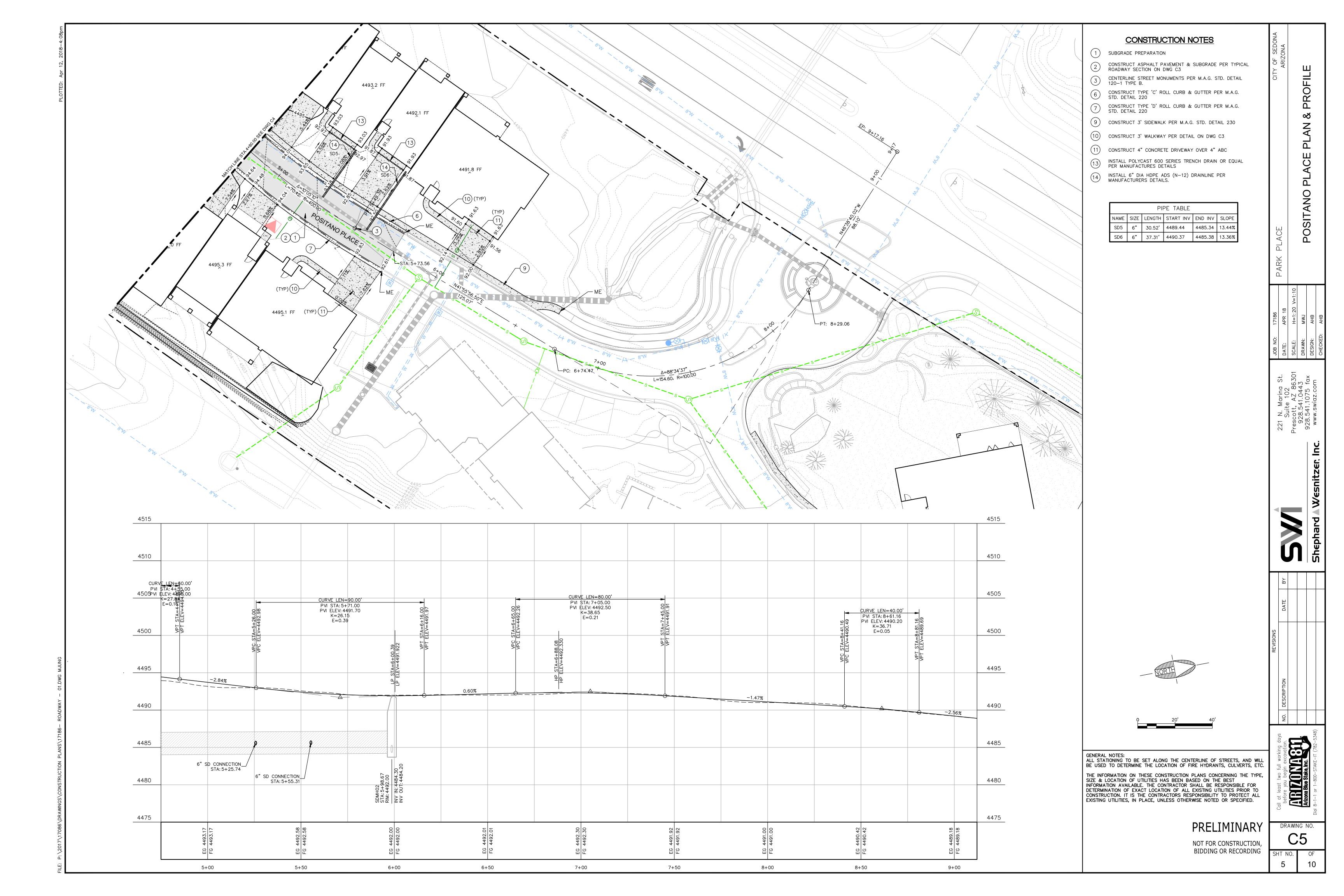
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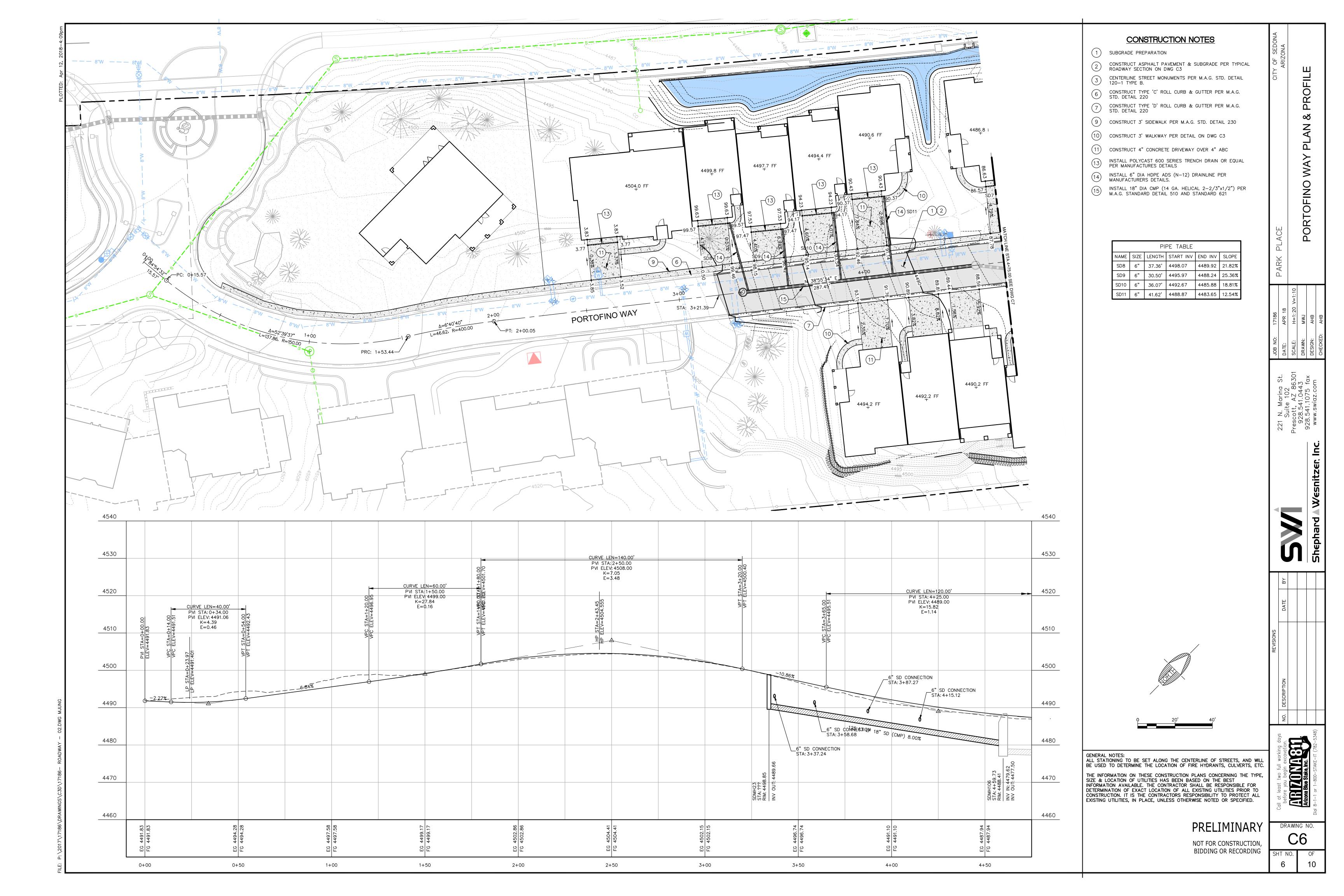
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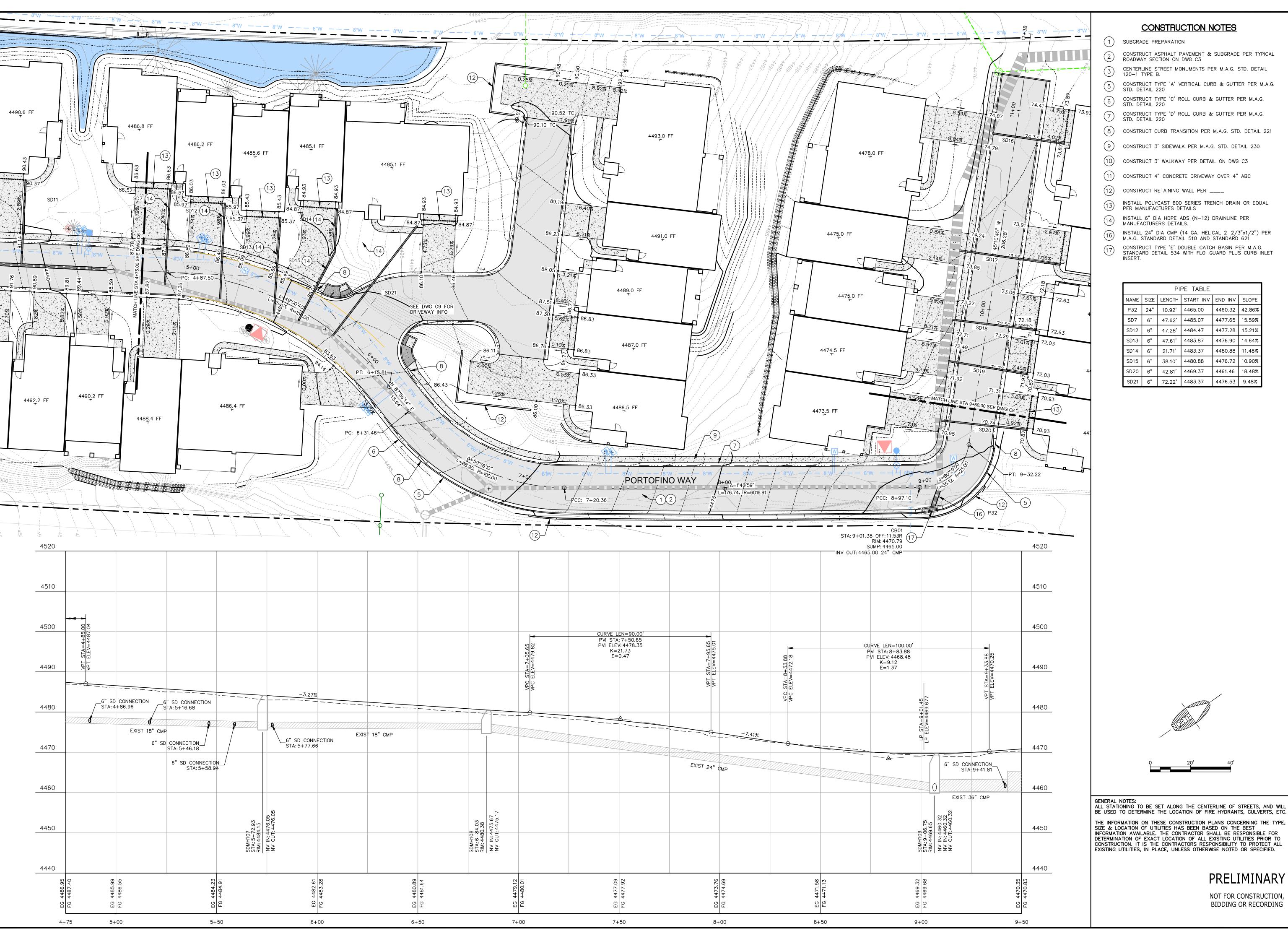
DRAWING NO.











CONSTRUCTION NOTES

- (1) SUBGRADE PREPARATION
- 2 CONSTRUCT ASPHALT PAVEMENT & SUBGRADE PER TYPICAL ROADWAY SECTION ON DWG C3
- CENTERLINE STREET MONUMENTS PER M.A.G. STD. DETAIL 120-1 TYPE B.
- 5 CONSTRUCT TYPE 'A' VERTICAL CURB & GUTTER PER M.A.G. STD. DETAIL 220
- 6 CONSTRUCT TYPE 'C' ROLL CURB & GUTTER PER M.A.G. STD. DETAIL 220
 - CONSTRUCT TYPE 'D' ROLL CURB & GUTTER PER M.A.G.
- (8) CONSTRUCT CURB TRANSITION PER M.A.G. STD. DETAIL 221
- (9) CONSTRUCT 3' SIDEWALK PER M.A.G. STD. DETAIL 230
- (11) CONSTRUCT 4" CONCRETE DRIVEWAY OVER 4" ABC
- (12) CONSTRUCT RETAINING WALL PER ____
- 13 INSTALL POLYCAST 600 SERIES TRENCH DRAIN OR EQUAL PER MANUFACTURES DETAILS
- INSTALL 6" DIA HDPE ADS (N-12) DRAINLINE PER MANUFACTURERS DETAILS.
- 16 INSTALL 24" DIA CMP (14 GA. HELICAL 2-2/3"x1/2") PER M.A.G. STANDARD DETAIL 510 AND STANDARD 621
 - CONSTRUCT TYPE 'E' DOUBLE CATCH BASIN PER M.A.G. STANDARD DETAIL 534 WITH FLO-GUARD PLUS CURB INLET

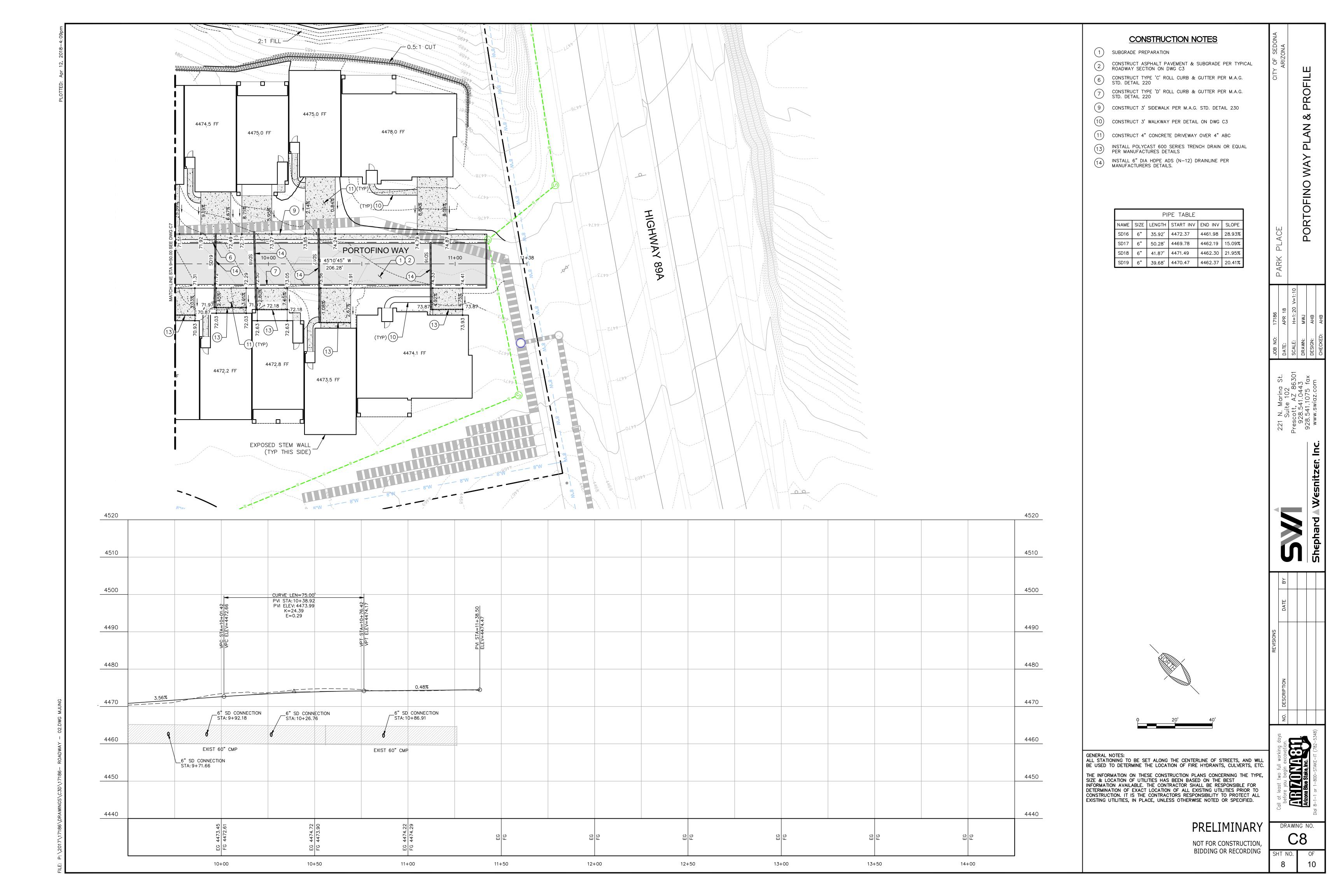
		PII	PE TABLE		
NAME	SIZE	LENGTH	START INV	END INV	SLOPE
P32	24"	10.92	4465.00	4460.32	42.86%
SD7	6"	47.62'	4485.07	4477.65	15.59%
SD12	6"	47.28	4484.47	4477.28	15.21%
SD13	6"	47.61'	4483.87	4476.90	14.64%
SD14	6"	21.71'	4483.37	4480.88	11.48%
SD15	6"	38.10'	4480.88	4476.72	10.90%
SD20	6"	42.81'	4469.37	4461.46	18.48%
SD21	6"	72.22'	4483.37	4476.53	9.48%

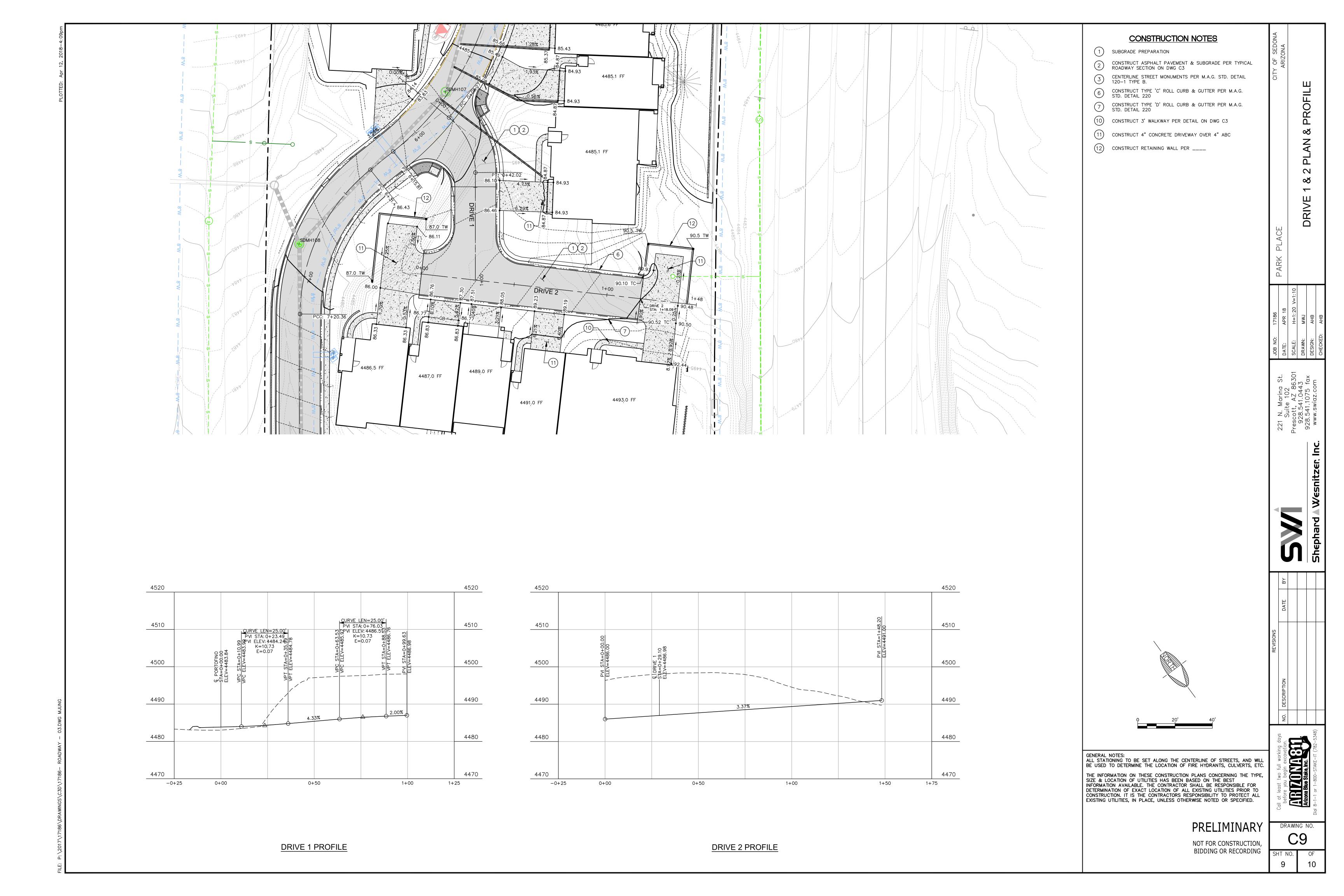
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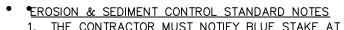
Arizona Blue Stake, Inc.

PRELIMINARY

NOT FOR CONSTRUCTION, BIDDING OR RECORDING DRAWING NO.







THE CONTRACTOR MUST NOTIFY BLUE STAKE AT 1-800-STAKE-IT AT LEAST 24 HOURS PRIOR TO THE START OF CONSTRUCTION IN ACCORDANCE WITH APPLICABLE CITY ORDINANCES AND POLICIES.

- THE CONTRACTOR GRANTS THE RIGHT-OF-ENTRY ON TO THIS PROPERTY TO THE DESIGNATED CITY OF SEDONA PERSONNEL FOR THE PURPOSE OF INSPECTING AND MONITORING FOR COMPLIANCE WITH EROSION AND SEDIMENT CONTROL LAW AND THE DESIGN AND CONSTRUCTION STANDARDS MANUAL. ALL EROSION CONTROL MEASURES SHOWN ON THE APPROVED PLAN MUST BE IN
- PLACE, INSPECTED AND APPROVED BY THE CITY OF SEDONA PRIOR TO CLEARING, STRIPPING OF TOPSOIL OR GRADING.
- 4. THE CONTRACTOR'S REPRESENTATIVE IS RESPONSIBLE FOR THE INSTALLATION OF ANY ADDITIONAL EROSION CONTROL MEASURES NECESSARY TO PREVENT EROSION AND SEDIMENTATION.
- 5. ALL DISTURBED AREAS ARE TO DRAIN TO APPROVED SEDIMENT CONTROL MEASURES AT ALL TIMES DURING LAND DISTURBING ACTIVITIES AND DURING SITE DEVELOPMENT UNTIL COMPLETE AND ADEQUATE STABILIZATION IS
- 6. WATER MUST BE PUMPED INTO AN APPROVED FILTERING DEVICE DURING DEWATERING OPERATIONS.
- 7. THE CONTRACTOR'S REPRESENTATIVE SHALL INSPECT AND DOCUMENT ALL EROSION AND SEDIMENT CONTROL MEASURES DAILY AND AFTER EACH
- A. SEDIMENT BASINS WILL BE CHECKED REGULARLY FOR SEDIMENT CLEANOUT. SEDIMENT SHALL BE REMOVED AND THE BASIN RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO ONE HALF THE DESIGN VOLUME OF THE WET STORAGE. SEDIMENT REMOVED FROM THE BASIN SHALL BE DEPOSITED IN A SUITABLE AREA AND IN A SUCH A

SIGNIFICANT RAINFALL. THE FOLLOWING ITEMS WILL BE CHECKED IN PARTICULAR:

- MANNER THAT IT WILL NOT ERODE AND CAUSE SEDIMENTATION PROBLEMS. B. GRAVEL OUTLETS WILL BE CHECKED REGULARLY FOR SEDIMENT BUILDUP WHICH WILL PREVENT DRAINAGE. IF THE GRAVEL IS CLOGGED BY SEDIMENT, IT SHALL BE REMOVED AND CLEANED OR REPLACED.
- 8. INSPECTION FORMS SHALL BE COMPLETED BY THE CONTRACTOR'S INSPECTOR WITH THE MINIMUM FOLLOWING INFORMATION: INSPECTION DATE, TITLE AND QUALIFICATIONS OF EACH INSPECTOR, WEATHER INFORMATION FOR PERIOD SINCE LAST INSPECTION, LOCATION OF DISCHARGE OF SEDIMENT OR OTHER POLLUTANTS, LIST OF BMPS THAT NEED TO BE MAINTAINED OR ARE INADEQUATE, LIST ADDITIONAL NEEDED BMPS, CORRECTIVE ACTION REQUIRED, SOURCES OF ALL NON-STORMWATER AND CONTROL MEASURES, DATES WHEN MAJOR GRADING ACTIONS OCCURRED, POLLUTANT DISCHARGE STATUS OF STORAGE AREAS, AND DATES WHEN CONSTRUCTION ACTIVITIES CEASED.
- 9. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING INSPECTION RECORDS FOR AT LEAST THREE (3) YEARS FOLLOWING THE COMPLETION OF PROJECT. A COPY OF THE APPROVED EROSION AND SEDIMENT CONTROL PLAN SHALL BE KEPT ON SITE AT ALL TIMES AND SHALL BE AMENDED AS NECESSARY TO REFLECT
- 10. THE SWPPP SHALL BE MODIFIED BY THE CONTRACTOR WITHIN 7 CALENDAR DAYS FOLLOWING AN INSPECTION THAT DISCOVERS AN INADEQUATE BMP. BMPS SHALL BE MODIFIED OR ADDED AS SOON AS PRACTICABLE AFTER THE BMP HAS BEEN DETERMINED INADEQUATE.
- 11. PERMANENT SOIL STABILIZATION SHALL BE APPLIED TO DENUDED AREAS WITHIN SEVEN (7) DAYS AFTER FINAL GRADE IS REACHED AND ALL WORK COMPLETED ON ANY PORTION OF THE SITE. TEMPORARY SOIL STABILIZATION SHALL BE APPLIED WITHIN SEVEN (7) DAYS TO DENUDED AREAS THAT MAY NOT BE AT FINAL GRADE BUT WILL REMAIN UNDISTURBED FOR LONGER THAN FOURTEEN (14) DAYS. ROADS AND PARKING AREAS SHALL BE STABILIZED AS SOON AS PRÉCIPITATION OCCURS OR IRRIGATION IS AVAILABLE.
- 12. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES WILL BE REMOVED UPON COMPLETION OF EACH PHASE.
- 13. WHEN SEDIMENT APPEARS ON A PAVED ROAD SURFACE, THE ROAD WILL BE CLEANED THOROUGHLY AT THE END OF EACH DAY. SEDIMENT WILL BE REMOVED FROM THE ROADS BY SHOVELING OR SWEEPING AND TRANSPORTED TO A SEDIMENT CONTROL DISPOSAL AREA. STREET WASHING WILL BE ALLOWED ONLY AFTER SEDIMENT IS REMOVED IN THIS MANNER.
- 14. AREAS WHICH ARE NOT TO BE DISTURBED WILL BE CLEARLY MARKED BY FLAGS,
- 15. A COPY OF THE PROJECT'S STORM WATER POLLUTION PREVENTION PLAN (SWPPP) SHALL BE MAINTAINED AT THE CONSTRUCTION SITE AND SHALL ALWAYS BE AVAILABLE FOR REVIEW.
- 16. CONTRACTOR SHALL BE RESPONSIBLE FOR UPDATING THE SWPPP THROUGHOUT CONSTRUCTION AND INDICATE ANY AND ALL REVISIONS / UPDATES ON THIS
- 17. APPROVAL OF PLANS DOES NOT RELIEVE THE OPERATOR FROM CORRECTING ERRORS OR OMISSIONS DISCOVERED DURING CONSTRUCTION. CONFORMANCE WITH THE REQUIREMENTS OF THIS PLAN SHALL IN NO WAY RELIEVE THE

- OPERATOR FROM HIS RESPONSIBILITIES TO THE SITE AND ADJACENT PROPERTIES. TEMPORARY EROSION CONTROL SHALL CONSIST OF, BUT NOT BE LIMITED TO, CONSTRUCTING SUCH FACILITIES AND TAKING SUCH MEASURES AS ARE NECESSARY TO PREVENT, CONTROL AND ABATE WATER, MUD AND EROSION DAMAGE TO PUBLIC AND PRIVATE PROPERTY AS A RESULT OF THE CONSTRUCTION OF THIS PROPERTY
- 18. CONTRACTOR SHALL IMMEDIATELY RESTORE ANY DAMAGED EROSION CONTROL MEASURE WITHIN THE PROJECT BOUNDARY.
- SIGNS, ETC.
- 20. TREE SAVE AREAS SHALL BE CLEARLY MARKED IN THE FIELD BY ORANGE
- SAFETY FENCE. 21. THE SWPPP SHALL BE MODIFIED BY THE CONTRACTOR WITHIN 7 BUSINESS DAYS FOLLOWING ANY CHANGE IN DESIGN, CONSTRUCTION OPERATION, OR MAINTENANCE THAT HAS A SIGNIFICANT EFFECT ON DISCHARGE OR NOT
- 22. THE SWPPP SHALL BE MODIFIED BY THE CONTRACTOR WITHIN 7 BUSINESS DAYS IF IT IS DETERMINED THAT DISCHARGE IS CAUSING OR CONTRIBUTING TO WATER QUALITY EXCEEDENCES OR THE SWPPP IS INEFFECTIVE.

EROSION CONTROL MEASURES

PREVIOUSLY ADDRESSED IN THE SWPPP.

ALL STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE CONSTRUCTED AND MAINTAINED ACCORDING TO MINIMUM STANDARDS AND SPECIFICATIONS ESTABLISHED HEREIN.

STRUCTURAL PRACTICES

1. SANDBAG DIKES: SANDBAG DIKES WILL BE INSTALLED IN BOTTOM OF WASH UPSTREAM AND DOWNSTREAM OF CONSTRUCTION AREAS AS INDICATED ON THE PLANS FOR EACH PHASE OF THE PROJECT.

• MANAGEMENT STRATEGIES

- 1. CONSTRUCTION WILL BE SEQUENCED SO THAT GRADING OPERATIONS CAN BEGIN AND END AS QUICKLY AS POSSIBLE.
- 2. THE JOB SUPERINTENDENT SHALL BE RESPONSIBLE FOR THE INSTALLATION AND

MAINTENANCE OF ALL EROSION AND SEDIMENT CONTROL PRACTICES.

- 3. AFTER ACHIEVING PERMANENT STABILIZATION, THE TEMPORARY EROSION & SILTATION CONTROLS WILL BE CLEANED UP AND REMOVED FROM THE SITE.
- MAINTENANCE

IN GENERAL, ALL EROSION & SEDIMENT CONTROL MEASURES WILL BE CHECKED DAILY AND AFTER EACH SIGNIFICANT RAINFALL

*GENERAL LAND CONSERVATION NOTES

- 1. ALL EROSION AND SILTATION CONTROL MEASURES ARE TO BE PLACED PRIOR TO OR AS THE FIRST STEP IN GRADING. THE FIRST AREAS TO BE CLEARED ARE TO BE THOSE REQUIRED FOR THE PERIMETER CONTROLS.
- 2. DURING CONSTRUCTION, ALL STORM SEWER INLETS WILL BE PROTECTED BY INLET PROTECTION DEVICES, MAINTAINED AND MODIFIED AS REQUIRED BY CONSTRUCTION PROGRESS.
- 3. AT THE COMPLETION OF CONSTRUCTION PROJECTS, AND PRIOR TO THE RELEASE OF THE BOND, ALL TEMPORARY SILTATION AND EROSION CONTROLS SHALL BE
- 4. TEMPORARY DIVERSIONS, SILT FENCE, STRAW ROLL, STONE CONSTRUCTION ENTRANCE AND OTHER CONTROL MEASURES AS NECESSARY ARE TO BE PLACED AS INDICATED ON THE DRAWINGS PRIOR TO OR DURING THE FIRST STEP IN
- 5. WHERE CONSISTENT WITH JOB SAFETY REQUIREMENTS, ALL EXCAVATED MATERIAL IS TO BE PLACED OUTSIDE OF THE WASH.

• GENERAL NOTES

- 1. ALL CONSTRUCTION SHALL CONFORM TO CITY OF SEDONA STANDARDS, MAG STANDARDS, AZPDES STANDARDS AND SPECIFICATIONS, AND GENERALLY ACCEPTED CONSTRUCTION PRACTICE.
- 2. THESE PLANS REPRESENT A REASONABLE EFFORT TO IMPLEMENT THE MOST CURRENT AND BEST MANAGEMENT PRACTICES (BMPS) IN MITIGATING STORM WATER POLLUTION DURING CONSTRUCTION. THE EFFECTIVENESS OF THE MITIGATION MEASURES DEPICTED IN THESE PLANS DEPEND IN PART ON PROPER INSTALLATION, IMPLEMENTATION, MAINTENANCE AND REPAIR OF THE DEVICES

- 3. THE DETAILS SHOWN ARE BY SHEPHARD WESNITZER, INC. AND/OR BY EROSION DRAW 4.0 (COPYRIGHT 2002 . WOHN MCULLAH) UNDER A LICENSE AGREEMENT.
- 4. TOPOGRAPHIC AND BASE MAP INFORMATION (SHOWN FADED ON PLANS) PROVIDED BY SWI AND CITY OF SEDONA GIS.
- 5. SANDBAG DIKE LOCATIONS SHOWN ON BASE MAP FILES ARE APPROXIMATE. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING EXACT LOCATIONS AND PROVIDING SILT FENCE FOR ALL FILL SLOPES.

GENERAL NOTES FOR SWPPP

- 1. A STANDBY CREW FOR EMERGENCY WORK SHALL BE AVAILABLE AT ALL TIMES DURING THE RAINY SEASON. NECESSARY MATERIALS SHALL BE AVAILABLE ON SITE AND STOCKPILED AT CONVENIENT LOCATIONS TO FACILITATE RAPID CONSTRUCTION OF TEMPORARY DEVICES OR TO REPAIR ANY DAMAGED EROSION CONTROL MEASURES, ESPECIALLY WHEN RAIN IS IMMINENT.
- 2. ALL PROTECTIVE DEVICES SHOWN SHALL BE IN PLACE AT THE END OF EACH
- 3. AFTER A RAIN STORM, ALL SILT AND DEBRIS SHALL BE REMOVED FROM SANDBAG DIKES.

STRAW ROLLS MUST BE PLACED

10'-25' (3-8m)

ALONG SLOPE CONTOURS

ON SOIL TYPE AND

SLOPE STEEPNESS

<u>LIVE STAKE</u>

1. STRAW ROLL INSTALLATION REQUIRES THE

UNDER OR AROUND ROLL.

PLACEMENT AND SECURE STAKING OF THE ROLL IN A TRENCH, 3"-5" (75-125mm) DEEP, DUG ON

CONTOUR. RUNOFF MUST NOT BE ALLOWED TO RUN

SC-17

4. PROTECT ALL STORM DRAINAGE STRUCTURES FROM SEDIMENT CLOGGING BY PROVIDING INLET PROTECTION AT ALL OPENINGS.

ADJACENT ROLLS SHALL

TIGHTLY ABUT-

- SEDIMENT, ORGANIC MATTER, AND NATIVE SEEDS ARE

-3"-5" (75-125mm)

1" X 1" STAKE

 $(25 \times 25 \text{mm})$

NOT TO SCALE

STRAWROLLS

(200–250mm)

CAPTURED BEHIND THE ROLLS

- 5. STORE MATERIALS AWAY FROM DRAINAGE COURSES TO PREVENT CONTACT WITH
- 6. PLACE DRIP PANS OR ABSORBENT MATERIALS UNDER CONSTRUCTION
- EQUIPMENT WHEN NOT IN USE. 7. CLEAN UP SPILLS WITH ABSORBENT MATERIALS.
- 8. KEEP WORK SITE CLEAN AND ORDERLY DAILY.
- 9. ALLOW MATERIAL DELIVERY AND STORAGE ONLY IN DESIGNATED AREAS AND
- 10. MINIMIZE THE USE OF HAZARDOUS MATERIALS ON SITE. 11. CLEAN UP LEAKS AND SPILLS IMMEDIATELY.
- 12. USE WATERTIGHT DUMPSTERS FOR TRASH AND CONSTRUCTION WASTE. 13. COLLECT SITE TRASH AS NEEDED, ESPECIALLY DURING RAINY OR WINDY
- 14. ARRANGE FOR REGULAR WASTE COLLECTION BEFORE CONTAINERS OVERFLOW.
- 15. PERFORM WASHOUT OF CONCRETE TRUCKS IN DESIGNATED AREAS ONLY. WASHOUT AREAS SHALL BE AWAY FROM STORM DRAINS, OPEN DITCHES, OR
- 16. TEMPORARY SANITARY FACILITIES SHALL BE MAINTAINED IN GOOD WORKING ORDER BY A LICENSED SERVICE.

LEGEND

INLET PROTECTION

DRAINAGE FLOW



ROADWAY

STONE THAT DRAINS INTO AN APPROVED

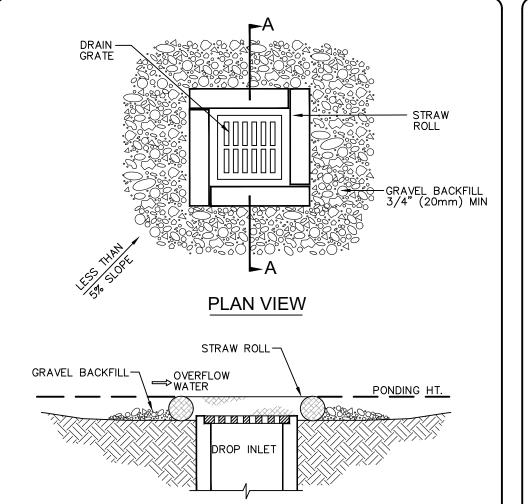
SEDIMENT TRAP OR SEDIMENT BASIN.

BMP REFERENCE (SEE DWG SW2)

2% OR GREATER

CONSTRUCTION

ENTRANCE/EXIT



SECTION A - A

1. DROP INLET SEDIMENT BARRIERS ARE TO BE USED FOR SMALL, NEARLY LEVEL DRAINAGE AREAS. (LESS THAN 5%) 2. EXCAVATE A BASIN OF SUFFICIENT SIZE ADJACENT TO THE DROP INLET. 3. THE TOP OF THE STRUCTURE (PONDING HEIGHT) MUST BE WELL BELOW THE GROUND ELEVATION DOWNSLOPE TO PREVENT RUNOFF

SEDIMENT BARRIER FROM BYPASSING THE INLET. A TEMPORARY DIKE MAY BE NECESSARY ON THE DOWNSLOPE (STRAW ROLL) SIDE OF THE STRUCTURE. SC-31

DROP INLET

SECTION A - A USE SANDBAGS, STRAW BALES OR OTHER APPROVED METHODS SPILLWAY STRAW BALES, SANDBAGS, OR CONTINUOUS BERM OF TO CHANNELIZE RUNOFF TO EQUIVALENT HEIGHT BASIN AS REQUIRED. SUPPLY WATER TO WASH WHEELS IF NECESSARY — -DIVERSION RIDGE 1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT—OF—WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEAN OUT OF ANY MEASURES USED TO TRAP SEDIMENT. 2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC **TEMPORARY** RIGHT-OF-WAY. GRAVEL 3. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED

TC-1

DRAWING NO. NOT FOR CONSTRUCTION BIDDING OR RECORDING

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Arizona Blue Stake, Inc.